Sherbourn®

PA 2-250

STEREO POWER AMPLIFIER

USER MANUAL

Important Safety Precautions and Explanation of Symbols

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important installation, operation, and service instructions in this manual.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated dangerous voltages within the enclosure that may be of sufficient magnitude to constitute the risk of electrical shock to the user.

Please read this Installation and Operation Manual thoroughly before attempting to install, configure, or operate the PA 2-250. After successful installation and configuration of the PA 2-250, be sure to retain this manual in a safe place for future reference.

Safety is a key component to a long lasting and trouble free installation. Please read and follow all instructions and heed all warnings on the PA 2-250 and in this manual. If you are not comfortable with the installation of audio/video entertainment equipment, you should seek the services of a qualified installation professional or call us for help.

WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT USE THE PA 2-250 NEAR WATER OR IN WET LOCATIONS, DO NOT EXPOSE IT TO RAIN OR MOISTURE, DO NOT EXPOSE IT TO DRIPPING OR SPLASHING FROM OTHER SOURCES, AND ENSURE THAT NO OBJECTS FILLED WITH LIQUIDS ARE PLACED ON IT. DOING SO MAY RESULT IN DAMAGE TO THE PA 2-250 AND THE RISK OF ELECTRIC SHOCK, WHICH MAY RESULT IN BODILY INJURY OR DEATH.

WARNING: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE THE COVER FROM THE PA 2-250. THERE ARE NO USER-SERVICEABLE PARTS INSIDE THE PA 2-250. REFER ALL SERVICE TO QUALIFIED SERVICE PERSONNEL.

WARNING: DANGEROUS VOLTAGES MAY BE PRESENT AT THE SPEAKER OUTPUT TERMINALS OF HIGH POWERED AMPLIFIERS. TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT TOUCH UNINSULATED AREAS OF TERMINALS OR SPEAKER WIRES, UNLESS THE AMPLIFIER IS TURNED OFF.

To reduce the risk of electrical damage, verify that no short circuits are present between terminals and /or speaker wires before applying power.

Do not install the PA 2-250 near or above any heat sources such as radiators, heating vents, or other apparatus that produce heat. Do not block any ventilation openings or heat sinks. Avoid installing the PA 2-250 directly above other heat-producing equipment unless sufficient ventilation or forced-air cooling is provided.

Do not install the PA 2-250 in locations without proper ventilation. The PA 2-250 should not be operated on a bed, sofa, rug, or similar surface that may block vents. The PA 2-250 should not be installed in an enclosed location such as a bookcase, cabinet, or closed equipment rack, unless sufficient forced-air ventilation is provided.

Always install your PA 2-250 according to the manufacturer’s instructions and only use attachments or accessories specified by the manufacturer.

Do not install the PA 2-250 on any stand, shelf, or other piece of furniture that is unable to support its weight.

Connect the PA 2-250 only to power sources of the correct voltage as shown in this manual and on the PA 2-250. Ensure that the Input Voltage selector switch on the rear of the PA 2-250 is set to the appropriate voltage.

Protect power supply cables from being pinched, walked on, or otherwise damaged. Be especially careful where the power cable enters the power outlet and the PA 2-250 unit.

Only connect the PA 2-250 to an electrical outlet or extension cord of appropriate type and rating.

DO NOT defeat the safety purpose of a grounding or polarized plug by removing ground pins or using unsafe adapters. A polarized plug has two blades - one wider than the other. A grounding plug has a third ground prong in addition to the two main conductors. The wide blade, or third groundling prong, is provided for your safety. If the provided plug does not fit your outlet, consult an electrician to replace your outlet. If you replace the PA 2-250 power cord, only use one of similar type and of equal or greater current rating.

The power cable for the PA 2-250 should be unplugged from the outlet during severe electrical storms or when unused for a long period of time.

Only replace any fuses in the PA 2-250 with fuses of proper value, type, and voltage rating.

The PA 2-250 should only be cleaned as directed in the Installation and Operation Manual. Avoid spraying liquids directly onto the PA 2-250 and never spray liquids into the vents. Care should be taken so that small objects do not fall inside of the PA 2-250.

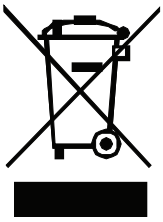
You should seek service for your PA 2-250 from qualified service personnel if any of the following occur:

1. The power-supply cord or the plug has been damaged.
2. Objects or liquid have fallen or spilled into the vents.
3. The PA 2-250 has been exposed to rain.
4. The PA 2-250 exhibits a marked change in performance.
5. The PA 2-250 has been dropped or its enclosure or chassis is damaged.

NOTE: TO COMPLETELY DISCONNECT THE PA 2-250 FROM THE AC POWER MAINS, DISCONNECT THE AC POWER CORD FROM THE AC RECEPTACLE.

NOTE: THE AC POWER CORD ON THE PA 2-250 MUST REMAIN READILY ACCESSIBLE AT ALL TIMES.

CAUTION
CAUTION: TO REDUCE THE RISK OF ELECTRICAL SHOCK, DO NOT REMOVE COVER. NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.



FCC Interference Statement

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference using one or more of the following measures:

1. Reorient or relocate the receiving antenna.
2. Increase the separation distance between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that of the receiver.
4. Consult the dealer or an experienced radio/TV technician for help.

For questions regarding service, please contact:

Sherbourn Technologies, Inc.
131 SE Parkway Court
Franklin, Tennessee
37064

Tel: (615) 791-4046
Fax: (615) 791-6287
Web: www.sherbourn.com

PA 2-250

STEREO POWER AMPLIFIER

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Introduction

Thank you for choosing the PA 2-250 Stereo Power Amplifier.

The PA 2-250 combines the superb sound quality and virtually endless power reserves necessary to satisfy a discerning audiophile. It posesses with the flexibility and reliability demanded by both customers and professional installers.

Design features like proven class A/B technology, Sherbourn's intelligent protection system, and true commercial grade construction quality and reliability make the PA 2-250 an ideal choice wherever two high-powered channels of excellent sounding audio amplification are needed.

The Sherbourn Team

The PA 2-250

The PA 2-250 delivers 300 watts/channel into 8 ohms and over 500 watts/channel into 4 ohms with very low noise and vanishingly low distortion, and is ruler flat over the audio band. A massive toroidal power supply and discrete fully symmetrical circuit design enable the PA 2-250 to run even difficult loads with ease and gives it the ability to reproduce music with the full dynamic range it needs to sound its best. The PA 2-250, simply put, is a clean, powerful, truly outstanding power amp.

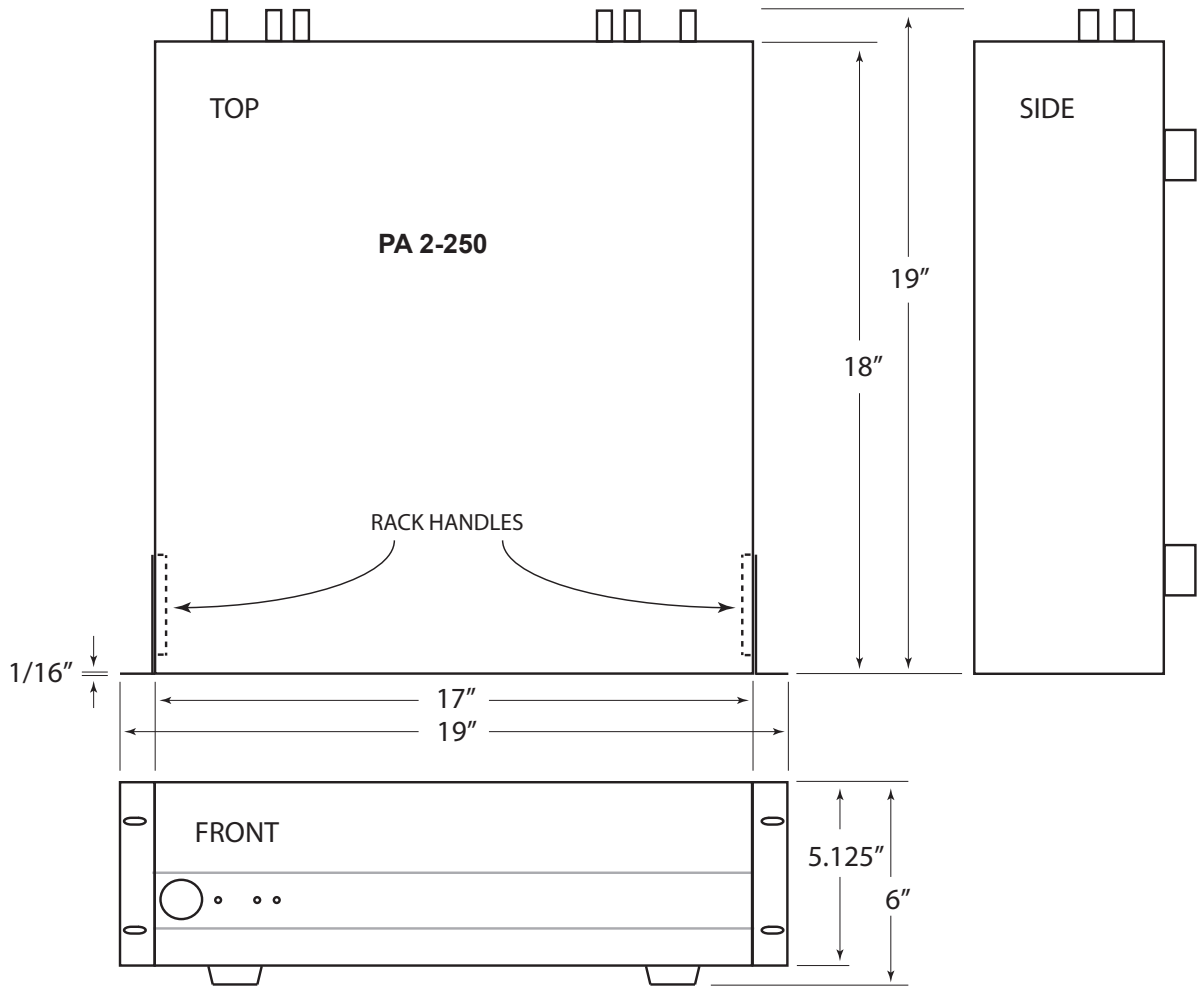
The PA 2-250 is also quite flexible and includes both balanced (XLR) and unbalanced (RCA) inputs, a Trigger Input, a Trigger Output, a rear panel switch to disable the Status LEDs, full-sized five way binding posts for speaker connection, and audiophile grade RCA input connectors. The PA 2-250 is rack mountable and can run from either 115 VAC or 230 VAC via a convenient removable IEC power cord. And, of course, you're protected by the Sherbourn 5-year warranty.

About This Manual

This manual will provide you with all the information you need to install and configure the PA 2-250 Stereo Power Amplifier to achieve its optimum potential. This manual also includes a brief summary of the features offered by the PA 2-250, a short description of how the controls work, and instructions on how to perform common operations.

You may wish to record serial numbers or other purchase information on the Notes page at the back of this manual.

Mechanical and Environmental



Dimensions: 17” wide x 6” high x 19” deep (includes feet, binding posts, no rack ears)
(boxed: 22” x 24” x 11” high)

Weight: 48 lbs/22 kg (unboxed); 59.5 lbs/27 kg (boxed)

Rack mountable: Optional rack mount brackets.

Power requirements:
115 VAC or 230 VAC +/- 10% @ 50 / 60 Hz (selectable by rear-panel switch)

Power consumption: 650 watts, under maximum load.

Ventilation and cooling:
To avoid overheating, be sure to provide adequate clearance and ventilation, both above and below.

Inputs and Outputs

Analog inputs:
Each channel has independent, switch selectable balanced (XLR) and unbalanced (RCA) inputs. Unbalanced inputs are audiophile grade, machined, gold-plated connectors.

Input sensitivity (for full output):
1.7 V (8 ohms); 1.5 V (4 ohms)

Speaker outputs:
5-way binding posts, gold plated

Minimum recommended load impedance:
4 ohms (one 4 ohm load or two paralleled 8 ohm loads per channel)

Trigger and control:
Trigger Input (mono 1/8”), Trigger Output (mono 1/8”)

Front panel controls and indicators:
On / Off (large push button); toggles Standby mode
On / Off LED (1); red indicates Standby mode; blue indicates normal operation;
flashing red indicates a fault (Protect)
Channel Status LEDs (2); blue indicates normal operation; flashing red indicates a fault
(may be disabled by rear panel Status LED switch)

Rear panel controls and indicators:
Power (rocker switch); switches mains power
Input Voltage (protected slide switch); selects 115 or 230 VAC line voltage
Status LED switch (disables front panel Status LEDs and dims On/Off LED)
Input switch (one per channel); selects balanced (XLR) or unbalanced (RCA) input

AC power input:
IEC C17/C18 type inlet and power cord

Installation Tips

Inputs and outputs

Balanced (XLR) audio interconnects will provide better noise immunity, and are best suited to long cable runs or noisy environments. Be sure to select the correct input for *each* channel using the appropriate rear panel switches.

Rack mounting

The PA 2-250 is quite heavy. Locate the PA 2-250 on racks, stands, or shelves rated to support at least 100 pounds. We recommend using the (optional) Sherbourn rack mount adapters.

Ventilation and cooling

Even though the PA 2-250 is very efficient, it can produce significant heat; to avoid overheating, be sure to provide adequate clearance and ventilation. Overheating adversely affects performance and shortens component life. We suggest locating components that produce the most heat towards the top of your rack, if practical, and leaving at least 1U (1.75”) of rack space between components. Space between components can be left open for ventilation, filled with a spacer, or used to house a forced-air cooling solution.

Sherbourn’s C-12 Flex Rack™ Cooling System uses whisper quiet, high capacity, variable speed fans to provide over 100 CFM of forced air cooling for rack installations. The C-12 offers a variety of air-flow options (including external ducting), includes professional features like triggered operation and thermostatic control, and takes up only 2U of rack space.

AC power source

The PA 2-250 uses an IEC C17/C18 type power cord and requires an appropriate matching AC outlet.

Connections

Ensure that the amplifier is powered Off when connecting and disconnecting speakers.
Ensure that speaker cables are not shorted to each other or to adjacent wiring before powering the PA 2-250 on.

Triggers

When the PA 2-250 is in Standby mode (On/Off LED is lit red), asserting a trigger signal turns the PA 2-250 on, and it remains on until the trigger is no longer asserted. If the trigger signal is already active when mains power is applied, the PA 2-250 will switch on as soon as it completes self-test, and will switch to Standby when the trigger is no longer asserted.

If the front panel On/Off switch is pressed while the PA 2-250 is on (after being switched on by an asserted trigger), the On/Off switch will override the trigger and the PA 2-250 will return to Standby position (even though the trigger is still being asserted). Pressing the front panel On/Off button, dropping and re-asserting the trigger, or switching the mains power off and on again while the trigger remains asserted, will then switch the PA 2-250 back to on.

Configuration

- Verify that the Sherbourn PA 2-250 is configured for the correct operating voltage for your area. (Voltage is set via the Input Voltage switch on the rear panel of the PA 2-250).
- Verify that all rear panel Input Selector switches are set correctly (balanced or unbalanced) for each input.

Note: Only one input (balanced OR unbalanced) on each channel is active at once.

- Verify that the rear panel Status LEDs switch is set to On if you want the front panel status LEDs to be active.

Note: When the Status LEDs switch is set to Off, the two channel Status LEDs will be Off and the front panel On / Off LED will be dimmed.

Performance Specifications

Analog inputs:
Each channel has independent, switch selectable, balanced (XLR) and unbalanced (RCA) inputs

Input sensitivity (for full output):
1.7 V (8 ohms); 1.5 V (4 ohms)

Speaker outputs:
5-way binding posts

Minimum recommended load impedance:
4 ohms, which equals one 4 ohm load or two paralleled 8 ohm loads

Power output:
500 watts RMS per channel (x2); into 4 ohms; two channels driven
250 watts RMS per channel (x2); into 8 ohms; two channels driven

S/N ratio:
> 110 dB (A-weighted; 8 ohms)
> 105 dB (A-weighted; 4 ohms)

THD:
< 1% at rated power
< 0.05% from 1 watt to 350 watts / channel into 4 ohms
< 0.02% from 1 watt to 200 watts / channel into 8 ohms

Frequency response:
20 Hz to 20 kHz + / - 0.05 dB at 1 watt (- 0.6 dB at 50 kHz; -1.0 dB at 80 kHz)

Trigger and control:
Trigger Input: 5 - 20 V AC or DC
Trigger Output: 12 V DC 10 mA max

Protection:
The PA 2-250 is protected against excessive operating temperature, shorted speaker connections, ground faults, and other common fault conditions. If a fault occurs, the PA 2-250 will automatically power down and the front panel status LEDs will indicate the faulty channel(s). The On/Off LED and the Channel Status LED for the channel with the fault will flash red; the Channel Status LED for the channel without a fault will be off.

To reset the protection, press the On/Off button twice after the fault has been removed. The fault will also clear if the mains power is cycled off. If the fault persists, please contact Sherbourn Technical Support.

Features

The PA 2-250 Stereo Power Amplifier combines the latest cutting edge technology, solid engineering, and high quality components to deliver superior sound quality, performance, and features. Notable features of the PA 2-250 include:

- 2 channels of fully discrete audiophile quality power
- Very low distortion; excellent frequency response; high S/N ratio
- Each channel delivers:
  250 watts into 8 ohms
  500 watts into 4 ohms
- High quality components used throughout
- Independent balanced (XLR) and unbalanced (RCA) inputs for each channel
- Full-sized five way binding posts for speaker connection
- Audiophile grade, gold plated, machined RCA connectors
- Trigger input and output
- Switchable front panel status indicators (Channel Status LEDs are disabled; power LED dims)
- Intelligent protection from electrical faults
- Intelligent protection from thermal faults and overheating
- Convection cooled
- Massive toroidal power supply
- Rack mountable
- 5-year Limited Warranty

You can find more information about the PA 2-250 Stereo Power Amplifier on our web site at http://www.sherbourn.com.

Operation

Turning on the AC power

The AC mains power on the PA 2-250 is controlled by the Power rocker switch located on the rear panel above the power cable (in the center of the panel). Once the AC power is turned on, the PA 2-250 will remain in Standby mode until the On/Off push button on the front panel is pressed or the Trigger Input is asserted.

Status Indicators

When the PA 2-250 is in Standby mode, the single LED next to the front panel On/Off switch (the On/Off LED) will be lit red; when the PA 2-250 is On, the On/Off LED and the two channel status LEDs will be lit blue (Channel Status LEDs will NOT be lit if the rear panel Status LED switch is set to Off).

Operating the PA 2-250 Manually

When the Power Mode switch is set to “On.” the PA 2-250 is controlled by the front panel On/Off button. Press the On/Off button once to turn the PA 2-250 On and again to return it to Standby.

Operating the PA 2-250 in Trigger Mode

When the PA 2-250 is in Standby mode (On/Off LED is lit red), asserting a trigger signal turns the PA 2-250 On and it remains On until the trigger is no longer asserted. If the trigger signal is already active when mains power is applied, the PA 2-250 will switch On as soon as it completes self-test, and will switch to Standby when the trigger is no longer asserted.

If the front panel On/Off switch is pressed while the PA 2-250 is On (after being switched on by an asserted trigger), the On/Off switch will override the trigger and the PA 2-250 will return to Standby position, even though the trigger is still being asserted. Pressing the front panel On/Off button, dropping and re-asserting the trigger, or switching the mains power off and on again while the trigger remains asserted, will then switch the PA 2-250 back to On.

Resetting a fault

If a short circuit or other fault occurs, the amplifier will go into protect mode and shut down. When this happens, the On/Off LED and the Channel Status LED for the channel with the fault will flash red; the Channel Status LED for the non-faulting channel will extinguish (this will happen even if the rear panel Status LEDs switch is Off).

To reset the protection, press the On/Off button twice after the fault has been removed. The fault will also clear if the mains power is cycled off. If the fault persists, please contact Sherbourn Technical Support.

Periodic Maintenance

The PA 2-250 requires no periodic maintenance.

Cleaning the PA 2-250

- If necessary, the PA 2-250 should be cleaned gently with a soft rag.
- If something sticky gets on the front panel or case of the PA 2-250, it should be cleaned with a mild cleaning solution applied to a soft rag, followed by wiping with a clean rag dampened with plain water, and drying with a soft dry rag or cloth.

Note: DO NOT spray water or cleaning solution directly onto the PA 2-250 or into the vents.

Troubleshooting

If problems occur, the first step should be to verify that the PA 2-250 is set to the proper line voltage for your AC power source and that your power source is operating correctly.

Problem: No sound is heard from any channel (the On/Off LED is not lit)

You have no AC power

- Verify that the circuit is live and the rear panel Power switch is On
- Verify that the line cord on the PA 2-250 is fully inserted and is tight

Problem: No sound is heard from any channel (the On/Off LED is lit red)

The PA 2-250 is in Standby mode

- Press the On/Off button
- Assert a trigger signal or verify that a trigger signal is present

Problem: No sound or distorted sound is heard from one or both channels (the Power LED and both Channel Status LEDs are lit blue)

The PA 2-250 is On and is not indicating a fault

- Verify that the input configuration for that channel is correct
- Check your source and your input cabling
- Check your speakers and speaker connections

Problem: No sound is heard from one or both channels (the On / Off LED and one or both Channel Status LEDs are flashing red)

The PA 2-250 is indicating a fault on one or both channels (the flashing Channel Status LEDs correspond to the channels where a fault has been detected).

- Verify that the speaker cable(s) and speaker terminals are not shorted
- Verify that the speaker itself is not shorted or damaged (try the speaker on the other channel and see if the fault “moves”)
- Verify that the source is not faulty (try that input cable on the other input and see if the fault “moves”)
- Disconnect all inputs and outputs and reset the PA 2-250

If the fault condition persists after all inputs and outputs have been disconnected and the fault has been reset, and the Voltage Select switch is in the proper position, please contact Sherbourn Technical Support.

Sherbourn Technologies, LLC Five Year Limited Warranty

What does this warranty cover? Sherbourn Technologies, LLC ("Sherbourn") warrants its products against defects in materials and workmanship.

How long does this coverage last? This warranty commences on the date of retail purchase by the original retail purchaser and runs for a period of five years thereafter. This warranty is transferrable to any person that owns the warranted product during the Term. Sherbourn warrants any replacement product or part furnished hereunder against defects in materials and workmanship for the longer of the following: (i) the amount of time remaining under the original warranty, or (ii) 120 days from your receipt of the repaired or replaced product. The duration described in the previous 2 sentences is hereinafter referred to as the "Term". TO THE FULLEST EXTENT PERMITTED BY LAW, ALL IMPLIED WARRANTIES RELATED TO THE ORIGINAL PRODUCT AND ANY REPLACEMENT PRODUCT OR PARTS (INCLUDING IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE) ARE EXPRESSLY LIMITED TO THE TERM OF THIS LIMITED WARRANTY. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. A claim under this warranty must be made by you within the Term. A claim shall not be valid (and Sherbourn has no obligation related to the claim) if it is not made within the Term and if it is not made in strict compliance with the requirements of the "How do you get service?" section.

What will Sherbourn do? Sherbourn will, at its option, either: (i) repair the product, or (ii) replace the product with a new consumer product which is identical or reasonably equivalent to the product. Sherbourn may provide you with a refund of the actual purchase price of the product in the event (i) Sherbourn is unable to provide replacement and repair is not commercially practicable or cannot be timely made, or (ii) you agree to accept a refund in lieu of other remedies hereunder. When a product or part is repaired or replaced, any replacement item becomes your property and the replaced item becomes Sherbourn's property. When a refund is given, the product for which the refund is provided must be returned to Sherbourn and becomes Sherbourn's property.

What is not covered by this warranty? This warranty does not apply: (i) to damage caused by use with non-Sherbourn products, where the non-Sherbourn product is the cause of the damage; (ii) to damage caused by service or maintenance performed by anyone who is not a representative of Sherbourn; (iii) to damage caused by accident, abuse, misuse, flood, fire, earthquake or other external causes; (iv) to a product or part that has been modified after its retail purchase, where the modification caused or contributed to the damage; (v) to consumable parts, such as batteries; or (vi) if any Sherbourn serial number has been removed or defaced and Sherbourn cannot otherwise confirm that you are the original retail purchaser. SHERBOURN SHALL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING FROM OR RELATED TO ANY DEFECTS IN OR DAMAGES TO ITS PRODUCTS. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

How do you get service? In order to make a claim under the warranty, you must:

1. Call a customer service representative (“CSR”) of Sherbourn at (615) 791-4046. Provide the CSR with a description of your problem and the serial number of the product for which the warranty claim is being made.

2. The CSR will provide you with a returned material authorization number (“RMA”).

3. Ship the product to Sherbourn at the following address, with the RMA number clearly visible. Parcels arriving without an RMA number on the outside of the box will be refused.

Sherbourn Technologies, LLC

Attn: Repair Department

135 Southeast Parkway Court

Franklin, TN 37064

How does state law apply? This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.

Notes

Sherbourn®

Custom Home Theater and Audio Solutions

Sherbourn Technologies
131 Southeast Parkway Court
Franklin, TN, 37064
www.sherbourn.com